THE COIR YARN INDUSTRY

The coir yarn industry is the Cinderella of the coir fibre industry of Ceylon. While the production of coir bristle and coir-mattress is highly mechanized and organized in mills with big capital outlays in a coastal belt about thirty miles wide, north of Colombo and extending up to Puttalam, the production of coir yarn languishes in the homes of the people and is exclusively a cottage industry, extending along the coast south of Colombo from Waskaduwa to Tangalla with a depth of about two or three miles to the interior.

Localization

Coir is the fibrous mass, the mesocarp, between the smooth outer husk of the coconut and the shell of the inner kernel. Yarn is prepared from the fibre extracted from retted coconut husks. Facilities for retting and proximity to retting places are therefore important factors. The localization of the coir yarn industry from Waskaduwa to Tangalla is due to the availability of large supplies of coconut husks in the neighbourhood of the retting sites and the existence in this area of tracts of backwater fed by streams and connected with the sea which afford facilities for retting. These tracts of backwater are therefore brackish and brackish water with scour offers the most advantageous place for retting of husks.

In addition to these natural facilities, there are other factors that have contributed to the localization of the coir yarn industry in the Waskaduwa-Tangalla region. Toddy tapping, which is carried on in the region from Waskaduwa to Bentota on an extensive scale, requires considerable quantities of coir yarn. Toddy tapping therefore, is an important outlet for the coir yarn industry.

The spinning of yarn is the main occupation of the womenfolk and children of these areas. The men generally have no permanent occupation except for certain amount of causal work in the way of carpentry, masonry, plucking nuts, retting of husks, in addition to fishing which is seasonal, and tapping of toddy which is restricted to the area from Waskaduwa to Bentota. The coir yarn industry therefore furnishes the only means of livelihood to most of the people in the Waskaduwa-Tangalla region and is their chief source of cash income. The problems of the industry may therefore be aptly described as socio-economic as it is so much inter-twined with the lives of the inhabitants of these coastal areas. It is needless therefore to emphasize the importance of the industry from the view point of the economic set-up of this part of the country.

Husking.—The husks of the fresh coconut provide the raw material for the production of coir fibre. The process of removing the husk from the rest of the coconut is called " husking." Husking is generally carried out by the older men, for which purpose they use a vertical spike embedded on a solid base or on hard ground to prevent any form of movement and the normal rate is about 2,000 nuts during a working day of eight hours. The husk from a single green coconut is generally broken up into four or six pieces depending on the size of coconut. These pieces are given a preliminary crushing to expedite the bleaching process before they are put into the retting pits.

Retting.—Retting consists essentially of soaking the husks in water to soften them so that the fibrous tissue and the inter-connective tissues can be separated. It has been established that the disintegration of the tissues connecting the fibres is caused by the action of certain micro-organisms present in the husks. This activity is only possible in water and the condition of the water determines to a very large extent the effectiveness and period required for retting. As

retting for the production of coir yarn is carried out in saline backwaters there is normally tidal action. This removes the deleterious matter from the vicinity of the husks and the resulting fibre is stronger and has a better colour than that retted in stagnant water.

The retting fields are generally shallow fenced-off portions along the mouth of rivers and streams or marshy pits which are subject to the gentle tidal action of the sea. Green husks are put into the retting pits and covered with coconut branches to shut off the sunlight. Retting efficiency depends to some extent on the number of husks put into the pit since there is no means of applying pressure to ensure the complete submersion of the husks except that provided by the husks themselves. In the case of the retting pits in this area, this pressure is supplied by means of chopped-off portions of the trunk of the coconut tree placed on top of the coconut branches which also act as a pad for submerging the husks. The husks remain in the pits for a period ranging from six to nine months.

The retted husks are removed from the retting pits by men who enter the water and throw out the husks which they consider are ready for " beating."

It is perhaps worth recording at this stage that the process of retting husks is controlled by the land owners of the area who own the land adjoining the backwaters. They either buy on their own account the green husks for retting or lease the right to use the land. The green husks are bought presently at the rate of rupees sixteen per thousand. On completion of the retting process the husks are sold at a price ranging from forty to seventy rupees per thousand and a part of the husk is sold from ninety to one rupee and fifty cents per hundred. Husk pit owners or lessees therefore make a decent profit out of their enterprise.

Coir Yarn.—The retted husks are first washed for the purpose of removing the mud and other impurities and are then beaten with a stout wooden baton or mallet to facilitate the separation of the fibre from the connective tissues of the husks. This very laborious process is done by women. The fibre is again sorted with a view to separating the coarse fibre from that suitable for manufacture and finally spun into coir yarn by rolling the strands for fibre between the palms of the hand or by means of two wheels. The coir yarn as manufactured consists of two lengths each containing a number of strands of coir fibre which are entwined in a continuous series. It is then cut up into suitable lengths which are made up into hanks of about two feet in length and generally having ten or twelve coils.

The coir yarn produced by the spinners are of different colours, grades and sizes. These factors vary from village to village depending on the availability of brackish water, good quality retted husks and the traditional twist peculiar to the area. Sometimes even the twist of the hank varies as different persons spin the same hank. The point that needs emphasis is that spinners do not turn out standard grades.

Marketing

The yarn produced by the spinner is sold to the nearest boutique for the days provisions or to an agent of the dealer who comes with his bullock cart for collection of yarn from village to village. In some cases the women themselves take the yarn to an appointed place for disposal.

The spinners are generally paid for their yarn on a hank or a pound basis. The price paid for hanks varies from two to five cents and that paid for a pound is about thirty cents. Traders usually enforce a " cut " on their purchases for moisture content. It is the practice of spinners sometimes to water the yarn before delivery for the purpose of increasing the weight of yarn and

thereby outwitting the traders but, on the other, the traders take the opportunity to inflict a severe "cut" on account of moisture. There is every reason to believe that the "cuts" so made are not commensurate with the moisture content as the trader is the sole arbitrator.

The yarn collected by the traders or agents of the shippers is transported in carts to their depots. There are no standard grades for coir yarn. Each shipper has his own export grade and the dealers buy the coir yarn according to these grades. The dealers bale the coir yarn in bundles of similar grades and transport it to the shippers at Galle. The shippers buy the coir yarn on a weight basis according to grade. The bales are resorted and graded at the shippers' stores by specialists who are able to separate the coir yarn into different market grades which look very much alike to the ordinary eye. This is a specialized job requiring long apprenticeship and training. Similar grades are next separated into bundles which have the same shade of pale brown colour. The graded and sorted yarn is finally made up into a three hundred weight bale which is compressed by a powerful press into a rectangular bale. The bales are wrapped with jute hessian and bound with hoop iron before shipment.

A small amount of pure coir fibre of the type used for spinning coir yarn is also exported in similar bales. This coir fibre is of pale brown colour and is different from the dark brown mattress and bristle fibre exported in large quantities from Colombo.

The principal and only port of export is Galle and yarn exported from Galle is drawn from the Waskaduwa-Tangalla region.

Uses of Coir Yarn

Coir yarn is used for multifarious purposes. A good proportion of the yarn is utilized in manufacturing mats and matting, rugs and carpets. Generally the manufacture of mat and matting requires yarn of even thickness and twist and having a bright golden colour and soft texture. While quality mats and matting are made mostly from the superior quality yarn, the cheaper grades of mats are manufactured from the coarser varieties of yarn.

The manufacture of rope, both for purposes of export and home consumption, demands substantial quantities of yarn of good tensile strength. The ability of coir yarn to withstand the prolonged action of sea water makes coir yarn and ropes made out of it especially suitable for use on boats and ships. Similarly, because coir yarn can stretch beyond its elastic limit without breaking, it is useful where intermittent or jerky strains are likely to be encountered. Coir ropes are in demand in Ceylon for drawing water from wells, tethering cattle, making toddy tappers "walks" and for a variety of domestic purposes.

Coir bags and nets are used for a variety of purposes such as storing coal, salt, and tea leaf. Besides these large scale uses, coir yarn is used for certain particular purpose such as in hop farms. En passant, it is desirable to record that during the last war coir yarn was utilized in the manufacture of beltings, for making roads, wearing surfaces, screenings for camouflage, as protective legging material, as soles for shoes and for other purposes in amphibian operations.

Exports of Coir Yarn

The largest volume of exports of coir yarn recorded in 1925 amounted to 131,387 cwt. and valued at Rs. 2,142,128. In subsequent years the volume of exports diminished steadily, the average for the years 1934-1938 being 97,144 cwt. to the value of Rs. 953,633. The period of the

World War II witnessed a steep decline and the nadir in the volume of exports was reached in 1945. Since then recovery in the export market has set in and, as the following table indicates, exports have been on the upswing :—

Exports of Coir Yarn

Average	Quantity	Value	Per Cent. Exports (Value Basis)	Average f.o.b. Value per Cwt.	Market Price per Cwt.
	Cwt.	Rs.		Rs.	Rs.
1934-1938 ..	97,144 ..	953,633 ..	0·37 ..	9·82 ..	9·02
1947 ..	35,703 ..	1,515,203 ..	0·18 ..	42·72 ..	38·67
1948 ..	50,870 ..	1,992,402 ..	0·21 ..	39·16 ..	31·53
1949 ..	56,777 ..	2,129,765 ..	0·21 ..	37·51 ..	30·05
1950 ..	87,069 ..	4,477,003 ..	0·30 ..	51·42 ..	45·68
1951 ..	88,116 ..	6,335,796 ..	0·35 ..	71·90 ..	56·71
1952 (Jany.-Mar.) ..	14,214 ..	964,771 ..	0·24 ..	67·87 ..	46·92

The highest F.O.B. values and market prices were reached in 1951. The first quarter for 1952 has shown a tendency towards a decline in F.O.B. prices for 1952.

Ceylon Markets for Coir Yarn

Prior to the war Ceylon's principal markets for coir yarn were, in the order of their importance, Germany, United Kingdom and Denmark. Germany, which was the best market in pre-war years, imported on an average 33,350 cwt. of coir yarn during the years 1934 to 1938.

The following statements give an indication of the annual exports of coir yarn by volume and value to foreign countries :—

	Volume (Cwt.)					
	1938	1948	1949	1950	1951	1952 (Jany.-Mar.)
United Kingdom	22,240 ..	11,942 ..	7,672 ..	12,749 ..	16,394 ..	2,202
Germany	33,125 ..	1,329 ..	15,102 ..	22,316 ..	22,707 ..	3,636
Denmark	8,921 ..	4,605 ..	8,805 ..	4,640 ..	6,195 ..	585
Australia	4,778 ..	3,249 ..	1,803 ..	2,874 ..	4,476 ..	358
Norway	8,767 ..	7,380 ..	6,261 ..	8,316 ..	4,605 ..	800
Sweden	4,140 ..	3,008 ..	1,771 ..	2,547 ..	2,015 ..	1,327
Italy	1,444 ..	228 ..	300 ..	264 ..	482 ..	—
Union of South Africa ..	477 ..	10,470 ..	9,243 ..	20,041 ..	17,412 ..	3,744
Holland	825 ..	3,753 ..	2,246 ..	4,395 ..	327 ..	—
United States of America ..	— ..	663 ..	66 ..	4,764 ..	7,080 ..	—
New Zealand	— ..	— ..	— ..	— ..	— ..	619
Others	4,407 ..	4,243 ..	3,508 ..	2,163 ..	6,423 ..	943
Total	92,124 ..	50,870 ..	56,777 ..	87,069 ..	88,116 ..	14,214

	Value (Rupees)					
	1938	1948	1949	1950	1951	1952 (Jany.-Mar.)
United Kingdom	249,491..	461,626..	269,626..	669,542..	1,140,863..	144,321
Germany	332,219..	53,485..	587,984..	1,146,041..	1,545,939..	241,926
Denmark	89,112..	175,778..	332,080..	255,629..	461,750..	42,418
Australia	47,576..	134,100..	70,339..	157,765..	373,222..	30,817
Norway	87,176..	300,774..	225,327..	441,454..	315,267..	53,751
Sweden	40,973..	113,791..	66,579..	126,644..	114,341..	79,936
Italy	14,285..	10,594 ..	15,579..	18,474..	35,379..	—
Union of South Africa ..	4,789..	412,092..	352,219..	986,286..	1,291,925..	269,153
Holland	8,191..	136,616..	73,455..	220,665..	24,667..	—
United States of America..	— ..	25,109..	2,194..	219,425..	506,181..	—
New Zealand	— ..	— ..	— ..	— ..	— ..	45,542
Others	43,662..	168,437..	134,374..	235,078..	528,262..	56,907
Total	917,474..	1,992,402..	2,129,765..	4,477,003..	6,335,796..	964,771

In 1951, the increase in exports of coir yarn continued; although still below the 1938 level, they were higher than those of 1950. Exports to Germany registered a further increase and the re-emergence of Germany to her pre-war position as Ceylon's predominant market has been crystallized. South Africa which occupied a second place in Ceylon's export market in 1950 continued to hold that position, although her purchases fell from 20,041 cwt. in 1950 to 17,412 cwt. in 1951. Shipments to South Africa amounted to 20,041 cwt. in 1950 compared with 9,243 cwt. in 1949 and only 477 cwt. in 1938. This was partly attributable to the Indian embargo on the export of Jute manufactures to South Africa. Exports to United Kingdom and Australia showed sharp increases after their decline in 1949. The United States, whose purchases have been irregular in the post-war period, took a substantial portion in 1951.

Comparison with India

India is the principal producer of coir and coir products in the world, and Ceylon is the only other country which produces coir on a commercial scale. Although coir is also produced in the Federation of Malaya, Indonesia, Philippines and other coconut growing states, it is on a miniature scale.

The following table furnishes a comparative statement of the exports of coir yarn from India and Ceylon :—

	India Tons		Ceylon Tons
1938-39	41,941	1938	4,606
1946-47	30,147	1946	1,461
1947-48	44,363	1947	1,785
1948-49	42,560	1948	2,542
1949-50	46,381	1949	2,839
1950-51	55,773	1950	4,353

(Source : Tables 99 and 100 Industrial Fibres. Commonwealth Economic Committee).

Yarn *Versus* Coir Products

The average exports of yarn for the last five years has accounted for 77·5 per cent., of the total exports of coir manufactures from Ceylon whereas the average shipments of coir products in the form of cordage, cables and other manufactures for the same period have accounted for only 21·5 per cent. It would appear that the importing countries utilize the yarn for the manufacture of floor coverings, mattings, bags, cordage, cables, etc. Therefore the question whether such steps as are necessary and possible to develop a manufacturing industry in the country of production of the raw material should be set in motion, deserves intensive investigation.

Problems of the Coir Yarn Industry

Production.—The problem in the field of production is that the methods of production are at present slow and laborious. The present method of retting takes a period of six to nine months, and the extraction of fibre involves drudgery. The application of the economics of the chemical and mechanical methods of retting and extraction of fibre which are extensively in use in the sister industry of mattress and bristle fibre on a reduced scale, may contribute to the improvement of production methods and not disrupt the existing village economy.

Retted husks are at present obtained by the spinners at a rather high price. The availability of retted husk at reasonable rates will go a long way to help the spinners. The Department of Industries, however, is already giving this subject active consideration.

Fibre is spun into coir yarn by rolling the strands of coir fibre between the palms of the hands or by means of a wheel. The hand-spun yarn is superior to that produced by the wheel but hand spinning makes the hands sore. On the other hand, the Indian machine-spun yarn is superior to the Ceylon machine-spun and hand-spun yarn. It is important therefore, to investigate the reasons why Ceylon cannot produce the same standard of machine-spun yarn as done in India.

Marketing.—On the marketing side the problem is that there is a multiplicity of intermediaries between the producer and the exporter with the result that the middlemen are said to be getting a disproportionate share in the profits of the business. In an industry like the coir yarn where the unit of productions is so small, the presence of intermediaries is an unavoidable phenomenon. If, however, the industry is organized on a co-operative basis, it should be possible to eliminate the middlemen and undertake the marketing of coir yarn ; it will also increase the bargaining power of the spinners and thereby enable them to obtain not only the bleached husks at normal prices, instead of paying exorbitant prices as at present, but also a higher price for their products from the shippers ; furthermore it will remove many of the inherent ills of the industry, step up productivity, and eliminate much of the drudgery that spinners have been heir to for generations, and finally redound to the well-being of those in the industry.

Quality and Grading.—The lack of recognized common standards or grades has proved a great impediment in the scientific development of the marketing of coir yarn. The few firms which dominate the export trade of coir yarn have different sets of coir yarn grades. In addition it is very difficult to compare Ceylon market prices with the London prices as the names of the standard grades of yarn quoted on the London market are different from the names of grades given by local shippers. The absence of clearly defined grades and prices would be a serious handicap to the future of even the most meritorious commodity. Therefore, the early establishment of common general standards for the purpose of describing qualities and for assessing the foreign matter and moisture content of coir yarn, is imperative for the development of marketing of coir yarn on scientific lines. The regulation of the market for coir yarn on the lines, say, of the rubber market,

would enable the quotation of coir yarn in the world commodity markets, make a substantial contribution to the amelioration of the marketing conditions, would enable the obtaining of better prices from the consuming countries, and help swell the producer's margin of profit.

Competition.—Coir yarn from South India is at present the most important competitor to the coir yarn industry of Ceylon. An important factor contributing to the competitive efficiency of India is the very large quantities and superiority of the grade of coir yarn exported. With the planning and steps taken by the Indian Government for the rationalization of the coir yarn industry there is every likelihood of India offering a serious threat to the future of the coir yarn industry of Ceylon.

Prior to the World War II, hard fibres such as Manila hemp, Javan Sisal, East African Sisal and Mexico Henequen hemp, etc., had, because of their superiority in tensile strength and facility of handling, constituted formidable rivals to the Indian and Ceylon coir fibre. With the entry of these competing fibres again into the world market, competition from these sources will be a material factor to be reckoned with in the near future. However, owing to its superior power of resistance to rot and white ants, etc., coir fibre is assured of a place in the economy of world fibres. The shippers of coir yarn in Ceylon, however, do not fear competition from these substitutes at present as coir yarn has the competitive advantage of being still one of the cheapest yarns available in Ceylon's overseas markets.

Another possible source of competition in the future would be from synthetic fibre which may come into prominence the rope, cordage, and cheap floor covering industries.

The floor covering made in Japan and China and the Jute floor coverings may enter into competition with mats and matting (manufactured from coir yarn) to the detriment of the coir yarn industry of Ceylon.

The immediate prospect, however, is not gloomy since mats and matting possess the competitive advantage of superior damp-resisting and hard-wearing qualities.

Prices.—Prices, at present, constitute a formidable problem. The market price per hundredweight of coir yarn has fallen from its peak price of Rs. 57·71 in 1951 to Rs. 46·92 for the first quarter in 1952 and the tendency is in the direction of a further decline in prices. The prevailing low price locally are the result of a fall in demand and prices in Ceylon overseas markets. Buyers appear to be sitting on "Korean stocks" and waiting for a further drop in prices. 88,116 cwt. of coir yarn were exported in 1951 but the exports for the first quarter of this year have been only 14,214 cwt. which roughly will be equivalent to 56,856 cwt. for 1952. This contraction in demand for coir yarn has already caused a certain amount of distress in the industry. The commercial problem of lack of demand is not one peculiar to the coir yarn industry but is a problem general to all our export products at present. In so far as the coir yarn industry is concerned, the adverse effect of the contraction in demand may be mitigated by improvements in production, marketing, and organizational methods.

The export trade is in the hands of a few shippers and it is not difficult for them to pay prices to their agents which are disproportionate to those obtained by them in the overseas markets. As pointed out earlier, the coir yarn industry is an integral part of the lives of thousands of inhabitants in the coastal belt from Waskaduwa to Tangalla. When export prices are high, some measure of relief is obtained by these inhabitants. But the benefit of high profits accrues to agents and shippers who handle the products. A scheme, therefore, to plough back some of these profits for the benefit of the industry and to lessen the hardships of producers during periods of depression, is a long-felt need.

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